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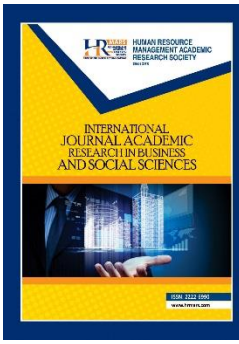
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Experts' Agreement towards Student Engagement Constructs For a Strategic Development of a Flipped Learning Framework for ESL Context

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Abstract

Students' engagement in a flip learning approach is a strategic partnership for effectual technological based classroom environments. The implementation of the approach on today's digital natives at universities whom life is seamlessly integrated with digital devices, has made it challenging to confine their engagement within a classroom setting. To add, an effective execution of such strategic environments were not simple, and the dearth of relevant empirical evidences were not surprising. Hence, there is much need to explore and empirically prove the effectiveness of flipped learning approach in fostering students' engagement in an ESL context. This paper aims to determine the required students' engagement constructs in developing a framework for flipped learning in an ESL environment. The engagement was defined via three constructs i.e. the 'Progressive Networking Activities' (NA), 'Engaging & Effective Learning Experiences' (LE), and Diversified Seamless Learning Platforms (LP) based on Chen et al. (2014) findings. The study utilized Fuzzy Delphi method to gather and analyze viewpoints of 18 experts from the relevant fields. An online questionnaire was developed to gather the experts' agreement towards the three constructs with a total of 26 items respectively. Only one of the items were excluded; concluding the framework with 25 items. Interestingly, the agreed constructs had much in common with the latter findings, but the items were now more refined for a strategic flipped learning framework that emphasizes on students' engagement.

Keywords: *Flip Learning Approach, Student Engagement, Framework, ESL Context, Strategic Development*

Introduction

Education of the new millenium is fast changing with the integration of technology in every level of its processes (Malganova & Rahkimova, 2016; Kenna 2014; Lowell and Verlegher 2013). Flipped learning approach can be an effective method to implement the blended learning and MOOC at the higher educational setting (Embi 2014; Enfield 2013; Sankey and Hunt 2013; Bergman and Sams 2014; Kenna 2014; O' Flaherty and Philips 2015). The independent and flexible nature of students needed for these two particular methods jives perfectly with the flipped learning method. Baepler, Walker and Driessen (2014) and Harun and Husin (2017), contends that the flipped learning method allows for a spectrum of pedagogical approach to be used in a flip approach classroom, hence a flexible range of approaches that could be tailored to each students' own style of learning. Furthermore, Lancaster and Read mentioned in Juhary and Amir (2015), contends that numerous research has shown that flipped classrooms empower students to be independent learners. The nature of the flipped approach focuses on the responsibility of learning that falls on the students rather than the teacher and his/her teaching. This propagates a learner centered approach, allowing students of different learning styles and abilities to develop what their learning on their own pace, (Raihanah, 2014). Chen et al. (2014) experimented with the four FLIP principals (Hamdan et. al, 2013) on a group of 32 Taiwanese post graduate students. Chen et. al (2014) contended that the four pillars were insufficient and, the reasons were the lack of focus on delivery and students' input on their learning experience using the approach. As a result, Chen proposes a further three more factors to consider in implementing Flip learning approach. They are: Progresive Networking activities, Engaging and Effective Learning Experience, and Diversified and Seamless Learning Platforms. Further deliberations on these factors can be obtained in Chen's paper (see Reference List). Nonetheless, litle empirical evidence exists that shows a parameter to effectively implement the Flipped learning approach effectively (Baepler et al., 2014; Lowell et al., 2013; Chen, Wang, & Chen, 2014; O'Flaherty & Phillips, 2015). The need for such a study that look into the development of a parameter for the flipped learning approach is important, as the approach is gaining momentum as a practical approach to implement technology in education internationally and in Malaysia (Juhary & Amir 2015). Therefore, this study is to determine the required students' engagement constructs and items for a strategic development of a flipped learning framework for an ESL context.

Literature Review

Many studies on Flipped learning concentrate on the students' perception of the approach and its effect in making learning a meaningful process. These studies are conducted in various educational context. Studies such as Mclaughlin et. al (2013), which looked at the views of pharmacology students by comparing between the Flip learning approach and conventional approaches, generally reported a positive result of students' learning using the Flip learning approach. Other studies reported results similarly in different contexts as well such as, Butt (2014) in Actuary, Tally & Scherer (2013) in Psychology, and Deslauriers, Schelew & Wieman, (2011) in Physics. Furthermore, past studies of the Flip learning approach has mainly investigated on the improvements in academia and students' behavior to learn. Many of the Previous Studies done focuses on how the flipped learning approach improved students' engagement and academic performance (Embi, 2014). Studies done on flipped learning by researchers like Butt (2014), and Walter-perez & Dong (2012) found that the approach

enhances students' academic performances in the lessons compared to conventional approaches. Furthermore, Bergmann & Sams (2012), Berret (2012), and Osman, Jamaludin & Mokhtar 2014, among other works have noted that the Flip learning approach also improves the implementation of higher-order thinking skills among students as, the approach relies on the fact that learning is personal, and that it happens in an active, and interactive environment.

All these studies mentioned, did not base their studies on a particular framework or a context-based framework to guide them to a much valid finding. This absence of framework can be explained in the novelty of the approach, as not much research has been done on identifying and describing factors that ensure effective implementation of the approach in each respective field Embi (2014). This research answers to such a paucity in literature by identifying and testing factors meted by Chen et. al (2014) as the basis for the development of a flipped learning framework in an ESL context.

Methodology

The study employed Fuzzy Delphi Method (FDM) in analyzing and interpreting the data gathered from the experts' responses towards the items in an online questionnaire. The experts' agreement towards the constructs is invaluable as their professional experience and knowledge on the subject matter is be pivotal in determining the right constructs for the framework. The data were analyzed in terms of the experts' acceptance or rejection of the items to measure the constructs it represents. A 5-Likert scale of agreement, from 'Strongly Disagree' (1) to 'Strongly Agree' (5) was used to rate the experts' agreement towards the questionnaire item. Apparently, three constructs, which are related to students' engagement were identified from the works of Chen et al. (2014). These three constructs comprised 26 items of statements and were presented in an online questionnaire using google docs. The link of the questionnaire was emailed to 22 identified experts in educational technology or ESL and educational technology. 18 experts provided their responses towards the statements which were then analysed using FDM. The quantitative analysis concerns with the (d) threshold value of the items and constructs, and the percentage of experts' agreement towards the items and constructs.

Results

The 26 items which represented the three constructs respectively, were analysed using FDM (Table 1). For deliberation and discussion of the findings, the (d) threshold values were benchmarked at $\geq$ 0.2, and 75% the percentage of experts' agreement for the constructs and items. The constructs and its items are as follow: Progressive Networking Activities (8 items), Engaging & Effective Learning Experiences (11 items), Diversified Seamless Learning Platforms (7 items)

Table 2 shows the results of FDM analysis for 'Progressive Networking Activities' construct. The threshold value (d) for each item was between 0.132 and 0.185. In addition, the experts agreed with all the items, which were: 100% (NA1), 94.4% (NA2), 94.4% (NA3), 88.9% (NA4), 94.4% (NA5), 88.9% (NA6), 88.9% (NA7), and 94.4% (NA8) respectively. No item was rejected by the experts for this construct. The whole threshold value (d) was 0.162 and the percentage of experts' agreement was at 90.3%.

Table 2
PROGRESSIVE NETWORKING ACTIVITIES (NA) THRESHOLD VALUE (D), EXPERTS' PERCENTAGE AGREEMENT, AND DEFUZZIFICATION

EXPERT	ITEM							
	NA1	NA2	NA3	NA4	NA5	NA6	NA7	NA8
1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2
2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
3	0.1	0.1	0.2	0.1	0.1	0.4	0.1	0.1
4	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2
5	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2
6	0.1	0.2	0.2	0.1	0.1	0.2	0.2	0.2
7	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
8	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2
9	0.1	0.2	0.2	0.1	0.1	0.2	0.2	0.2
10	0.2	0.1	0.1	0.1	0.1	0.1	0.4	0.1
11	0.2	0.4	0.1	0.4	0.1	0.1	0.1	0.1
12	0.2	0.4	0.1	0.1	0.1	0.1	0.1	0.4
13	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.1
14	0.2	0.4	0.4	0.4	0.4	0.4	0.4	0.1
15	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2
16	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1
17	0.1	0.2	0.2	0.2	0.2	0.1	0.2	0.2
18	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.1
d value for each item	0.151	0.185	0.170	0.158	0.132	0.172	0.181	0.166
d value of construct	0.162							
No. of Item $d \leq 0.2$	18	17	17	16	17	16	16	17
% of each Item $d \leq 0.2$	100.0	94.4	94.4	88.9	94.4	88.9	88.9	94.4
% of Construct	90.3							
Fuzzy Evaluation	12.80	11.60	12.40	11.60	11.60	11.80	12.00	12.20
Average of Fuzzy No.	0.711	0.644	0.689	0.644	0.644	0.656	0.667	0.678
Rank	1	6	2	8	7	5	4	3

Table 3 entails the threshold values (d) and experts' agreement percentage of each item for 'Engaging and Effective Learning Experiences' construct. The threshold values (d) of each accepted item was: 0.145 (LE1), 0.187 (LE2), 0.181 (LE3), 0.187 (LE4), 0.211 (LE5), 0.196 (LE6), 0.187 (LE8), 0.172 (LE9), 0.181 (LE10), and 0.196 (LE11). The percentage of experts' agreement of the accepted items were varied i.e. 100% (LE1), 94% (LE2;), 89% (LE3; LE4; LE6; LE8; LE9; LE10; and LE11), and 83% (LE5). Eventually, LE7 was rejected due to threshold value (d) of 0.24, and 17% which was below the 75 per cent benchmark. The overall construct threshold value (d) was at 0.189, and the overall experts' agreement was at 83 per cent.

Table 3
ENGAGING AND EFFECTIVE LEARNING EXPERIENCES (LE) CONSTRUCT THRESHOLD VALUE (D), EXPERTS' PERCENTAGE AGREEMENT, AND DEFUZZIFICATION

EXPERT	ITEM										
	LE 1	LE 2	LE 3	LE 4	LE 5	LE 6	LE 7	LE 8	LE 9	LE 10	LE 11
1	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2
2	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1
3	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.4	0.4	0.1	0.1
4	0.1	0.2	0.1	0.2	0.2	0.2	0.3	0.1	0.1	0.1	0.1
5	0.1	0.2	0.2	0.2	0.2	0.2	0.0	0.2	0.1	0.2	0.2
6	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2
7	0.2	0.1	0.2	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1
8	0.2	0.2	0.1	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2
9	0.1	0.1	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2
10	0.1	0.1	0.1	0.4	0.4	0.1	0.3	0.1	0.1	0.1	0.1
11	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1
12	0.1	0.1	0.4	0.1	0.1	0.1	0.3	0.1	0.1	0.1	0.1
13	0.2	0.2	0.1	0.1	0.1	0.1	0.3	0.1	0.1	0.1	0.7
14	0.1	0.4	0.1	0.1	0.1	0.2	0.0	0.2	0.1	0.4	0.1
15	0.1	0.2	0.2	0.2	0.2	0.1	0.3	0.2	0.2	0.2	0.2
16	0.1	0.4	0.4	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.4
17	0.2	0.2	0.2	0.2	0.7	0.7	0.6	0.2	0.2	0.2	0.2
18	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2
d value for each item	0.145	0.187	0.181	0.187	0.201	0.196	0.241	0.187	0.172	0.181	0.196
d value of construct	0.189										
No. of Item $d \leq 0.2$	18	17	16	16	15	16	3	16	16	16	16
% of each Item $d \leq 0.2$	100.0	94.4	88.9	88.9	83.3	88.9	16.7	88.9	88.9	88.9	88.9
% of Construct	83.3										
Fuzzy Evaluation	12.20	12.20	12.00	12.20	11.60	11.80		12.20	11.80	12.00	11.80
Average of Fuzzy No.	0.68	0.68	0.67	0.68	0.64	0.66	Reject	0.68	0.66	0.67	0.66
Rank	1	2	5	4	10	8		3	7	6	9

Table 4 reveals the FDM analysis on 'Diversified Seamless Platform' construct. There was no item rejection for this construct, which meant all its seven items were accepted and viewed important by the experts. The threshold value (d) of each item was: 0.193 (DP1), 0.163 (DP2), 0.152 (DP3), 0.147 (DP4), 0.147 (DP5), 0.190 (DP6), and 0.200 (DP7). Meanwhile, the percentage of experts' agreement of the items are: 83.3% (DP1), 94.4% (DP2), 100.0% (DP3), 100.0% (DP4), 100.0% (DP5), 88.9% (DP6), and 83.3% (DP7). The overall threshold value (d) for this construct was 0.171 and the experts' agreement was 92.9 per cent.

Table 4
DIVERSIFIED SEAMLESS LEARNING PLATFORMS (DP) CONSTRUCT THRESHOLD VALUE (D), EXPERTS' PERCENTAGE AGREEMENT, AND DEFUZZIFICATION

EXPERT	ITEM						
	DP1	DP2	DP3	DP4	DP5	DP6	DP7
1	0.2	0.2	0.1	0.1	0.1	0.2	0.2
2	0.1	0.1	0.2	0.2	0.2	0.1	0.1
3	0.4	0.4	0.2	0.2	0.2	0.1	0.1
4	0.1	0.1	0.2	0.1	0.1	0.2	0.2
5	0.2	0.2	0.1	0.1	0.1	0.2	0.2
6	0.1	0.1	0.1	0.1	0.1	0.2	0.2
7	0.1	0.1	0.1	0.1	0.1	0.2	0.2
8	0.2	0.2	0.1	0.1	0.1	0.2	0.2
9	0.2	0.2	0.1	0.1	0.1	0.2	0.2
10	0.1	0.1	0.2	0.2	0.1	0.1	0.1
11	0.4	0.1	0.2	0.2	0.2	0.1	0.1
12	0.1	0.1	0.2	0.2	0.2	0.4	0.4
13	0.2	0.2	0.1	0.1	0.2	0.1	0.1
14	0.1	0.1	0.2	0.2	0.2	0.1	0.4
15	0.2	0.2	0.1	0.1	0.1	0.2	0.2
16	0.4	0.1	0.2	0.2	0.2	0.4	0.4
17	0.2	0.2	0.1	0.1	0.1	0.2	0.2
18	0.2	0.2	0.1	0.1	0.1	0.2	0.2
d value for each item	0.193	0.163	0.152	0.147	0.147	0.190	0.200
d value of construct	0.171						
No. of Item $d \leq 0.2$	15	17	18	18	18	16	15
% of each Item $d \leq 0.2$	83.3	94.4	100.0	100.0	100.0	88.9	83.3
% of Construct	92.9						
Fuzzy Evaluation	11.800	12.200	12.800	13.000	13.000	12.400	12.200
Average of Fuzzy No.	0.656	0.678	0.711	0.722	0.722	0.689	0.678
Rank	7	5	3	2	1	4	6

Conclusion

The experts agreed that the developed flip learning framework required three students' engagement related constructs with 25 items to implement the approach in the targeted context. The Fuzzy delphi analysis of the constructs yielded in the rejection of only one item from the Engaging and Effective Learning Expereiences construct. Conclusively, the results confirmed the conformity between the participated experts and the work by Chen et al. (2014) as all agree the three students' engagement related constructs and its items as being the strategic elements for the development of a flip learning framework in an ESL context. The constructs and items encompassed strategic interdependent parameters of technologies, pedagogies, and learners' experience, for a complete 21st century teaching and learning spectrum.

The study contributed to the establishing the factors deemed important and relevant in a Flipped learning approach framework for ESL context. The factors investigated and approved by the experts are in line with important concepts of the Industrial Revolution 4.0. The concepts: of communication, collaboration, critical and creative thinking are the underlying concepts that forms the fundamental building blocks of the three factors investigated. This makes the factors relevant and important in discussing and developing and technology-based investigations of the education environment. Conclusively, the effective usage of the Flipped learning approach in an ESL context is possible, with the identification of the factors that ensures a positive students' engagement. This guarantees the learning sessions to be more organized and meaningful for the students involved.

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